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Patent Application

IN THE UNITED STATES PATENT AND TRADEMARK OFFICEBefore the Board of Patent Appeals and Interferences

In re application of Juergen DICKMANN et al.

Confirmation No.: 8976

Appln. No.: 10/779,454

Art Unit: 3634

Filed: February 13, 2004

Examiner: STRIMBU Gregory J.

For: DOOR AREA MONITORING DEVICE FOR MONITORING THE SWING  
AREA OF AN AUTOMOBILE DOOR

Attorney Docket No.: 3926.063

Customer No.: 30448

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Hon. Commissioner for Patents  
Alexandria, VA 22313-1450

## AMENDED APPEAL BRIEF

Sir:

In response to the Notification of Non-Compliant Appeal brief dated March 18, 2008, Appellants submit herewith the Amended Appeal Brief. Please charge any fee that may be required to deposit account No. 50-0951.

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Amended Appeal Brief dated 04/16/2008

Reply to Notification of Non-Compliant Appeal brief dated 03/18/2008

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Status of Claims:

Claims 1 and 4-18 are rejected and are under appeal. Claims 2-3 were cancelled in the response dated August 17, 2007.

Summary of the Claimed Subject Matter:

Independent claim 1 of the instant application recites a door space monitoring device for monitoring a door swing area of a vehicle door (see paragraph [0001], lines 1-2 of the specification), comprising:

sensor means (1) for sensing a presence of an object in the door swing area of the vehicle door (see, e.g., paragraph [00026], line 1 of the specification and Fig. 1),

a sensor-data evaluating evaluation unit (provided on the circuit board (6), no reference number; Fig. 2 shows in detail how the sensor-data is evaluated) (see, e.g., paragraph [00027], line 19 of the specification), and

a control unit (provided on the circuit board (6), no reference number) for controlling the sensor means (1) (see, e.g., paragraph [00027], lines 5-6),

wherein a monitoring area sensed by the sensor means (1) is substantially two-dimensional (see, e.g., paragraph [00031], line 2 of the specification), and wherein the sensor means (1) includes at least one light source (3) for omission of a light beam, at least one micro-mirror-unit (4) for pivoting the light beam (3) and at least one photo-detector (5) for monitoring the two-dimensional monitoring area (see, e.g., paragraph [00026], lines 1-4 of the specification and Fig. 1);

wherein the micro-mirror-unit (4) has at least one micro-mechanical pivotable planar mirror associated with an additional non-planar mirror (see, e.g., paragraph [00010], lines 1-4 of the specification);

wherein the additional non-planar mirror is shaped such that its contour corresponds to the contour of the vehicle door (see, e.g., paragraph [00010], lines 14-16 of the specification).

Independent claim 6 of the instant application recites, in combination with a vehicle door, a door space monitoring device for monitoring a door swing area of the vehicle door (see paragraph [0001], lines 1-2 of the specification) comprising:

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sensor means (1) for sensing a presence of an object in the door swing area of the vehicle door (see, e.g., paragraph [00026], line 1 of the specification and Fig. 1),

a sensor-data evaluating evaluation unit (provided on the circuit board (6), no reference number; Fig. 2 shows in detail how the sensor-data is evaluated) (see, e.g., paragraph [00027], line 19 of the specification and Fig. 2), and

a control unit (provided on the circuit board (6), no reference number) for controlling the sensor means (see, e.g., paragraphs [00027], lines 5-6),

wherein a monitoring area sensed by the sensor means is substantially two-dimensional (see, e.g., paragraph [00031], line 2 of the specification), and wherein the sensor means includes at least one light source (3) for emission of a light beam, at least one micro-mirror-unit (4) for pivoting the light beam and at least one photo-detector (5) for monitoring the two-dimensional monitoring area (see, e.g., paragraph [00026], lines 1-4 of the specification and Fig. 1);

wherein the light source (3), the micro-mirror-unit (4) and the photo-detector (5) are provided in an area of a pivot axis of the vehicle door (see, e.g., paragraph [00013], lines 1-3 of the specification).

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 5, 13-14 and 17-18 are definite under 35 U.S.C. § 112, second paragraph.
2. Whether or not claims 1 and 10 are anticipated by Japanese Patent Publication No. 10-26724 (hereinafter JP 10-26724) under 35 U.S.C. § 102(b).
3. Whether or not claim 4 is patentable over JP 10-26724 and further in view of Hornbeck (US 5,650,881) under 35 U.S.C. § 103(a).
4. Whether or not claims 5-6 and 15 are patentable over JP 10-26724 and further in view of Mochida et al. (US 4,458,446) (hereinafter Mochida) under 35 U.S.C. § 103(a).
5. Whether or not claims 7-8 are patentable over JP 10-26724 and further in view of Haas et al. (US 4,782,224) (hereinafter Hass) under 35 U.S.C. § 103(a).
6. Whether or not claim 9 is patentable over JP 10-26724 and further in view of Underwood (US 4,118,625) under 35 U.S.C. § 103(a).

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7. Whether or not claims 11-14 are patentable over JP 10-26724 in view of Hornbeck and further in view of Isogai et al. (US 2003/0090647) (hereinafter Isogai) under 35 U.S.C. § 103(a).
8. Whether or not claims 16-18 are patentable over JP 10-26724 and further in view of Isogai under 35 U.S.C. § 103(a).

Argument:

**CLAIMS 5, 13-14 AND 17-18 ARE  
DEFINITE UNDER 35 U.S.C. 112, SECOND PARAGRAPH**

Claims 5, 13-14, and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

The claims have been amended to overcome the rejections in the amendment submitted on August 17, 2007 in response to the final Office action. Since the amendment has been entered and the Examiner did not indicate any further rejection under 35 USC 112, second paragraph, in the Advisory action, it is assumed that the rejections have been overcome.

**CLAIMS 1 AND 10 ARE PATENTABLE  
OVER JP 10-26724 UNDER 35 U.S.C. 102(B)**

Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-26724.

The present invention concerns a door space monitoring device that monitors a door swing area of a vehicle door and thus is part of the vehicle and has close relationship with the vehicle door. According to claim 1, the micro-mirror-unit has at least one pivotable planar mirror associated with an additional non-planar mirror and thus realizes the two-dimensional monitoring area in which a light beam is pivoted as a reflected beam by the pivotable planar mirror and this reflected beam then encounters the additional non-planar mirror, which due to its non-planar design realizes a two-dimensional monitoring area that corresponds to the contour of the vehicle door. The surface of the non-planar mirror corresponds to the contour of the vehicle door and thus a very simple and reliable two-dimensional monitoring area of the vehicle door is achieved. See, e.g., paragraph [00010] of the specification.

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JP 10-26724 discloses a multi-point distance measuring system, which has a micro-mirror-unit (DMD 16) (see especially Fig. 1 with description). The distance to a detected object or its extension can be obtained in connection with a consideration of multiple points of the object taking into consideration of a travel time. This multi-point distance measuring system is applied exclusively in connection with a camera (see paragraph [0014] of the disclosure). It is described there that the system is connected with a photo optical system 20 (see Fig. 1), which is part of a camera. Based on the measured distances to different points of a detected object, the camera is adjusted sharply accordingly. Further hint toward the exclusiveness of the application with camera/photograph can be found in paragraphs [0008] and [0012].

Nowhere does JP 10-26724 mention or suggest a reference to a vehicle or door space monitoring device for a vehicle. The merely possibility of determining the distance of an object to multiple points and thus implicitly detecting the presence of the object for a camera with such a multi-point distance measuring system does not provide any hint to integrate this camera multi-point measuring system in a door monitoring device. This system is specifically designed for the application for cameras due to the ability of determining the distance for multiple measuring points at the same time. The technical requirements of temperature stability and mechanical robustness especially vibration rigidity for a camera system are totally different from those for an automobile system for monitoring the vehicle door space. Therefore, it is not obvious to transfer such a camera system to a vehicle door space monitoring device.

Although JP 10-26724 discloses the application of two DMD-chips, each of which has a plurality of individual planar mirrors corresponding to the first micro-mechanical pivotable planar mirror of the present invention, it does not disclose the second additional non-planar mirror.

Clearly, JP 10-26724 only discloses the application of a multi-point distance measuring system for a camera. This reference does not provide any hint toward a door space monitoring system according to the present invention, especially not concerning the problem of such a system, which is especially marked by a robustness, compactness, and especially vibration resistance. With the door space monitoring system according to the present invention, it is not necessary to determine a distance to a detected object, especially not multi-point distance to the a detected object, but rather it is only necessary to determine

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the presence of the object. It is, therefore, clear that JP 10-26724 does not provide any hint toward realizing a door space monitoring system.

In addition, JP 10-26724 does not provide any hint toward a combination or replacement of a sensor for another known door space monitoring system. Therefore, JP 10-26724 can also not be combined with another known door space monitoring system.

Since the features of original claims 2-3 have now been incorporated into claim 1 and claims 2-3 were rejected by a combination of JP 10-26724 and Hornbeck, a discussion of Hornbeck is necessary.

Hornbeck discloses a special formation of a micro-mirror-unit, which is also identified as DMD-unit. This special formation concerns the location and rotation of the individual micro-mechanical mirrors of the plurality of small micro-mechanical mirrors, which together form the micro-mirror-unit. Hornbeck does not provide any hint to substitute such a micro-mirror-unit. Especially, there is no hint of applying it as a component of a sensor for a door space monitoring device. The existence and the basic functionality of a micro-mirror-unit is explained in the background of the specification and is assumed to be in principle known. However, Hornbeck does not contain any hint toward the application of the micro-mirror-unit in the direction of the present invention and does not provide any advantage or problem in the direction of the present invention. A combination of Hornbeck with another reference is, therefore, not obvious.

Hornbeck only very generally discloses that the individual mirrors of a DMD-array can have concave and/or convex and/or planar surfaces and does not provide a hint anywhere that the surface should correspond to the contour of the vehicle door. Especially, Hornbeck, just as JP 10-26724, does not disclose anywhere any reference to an automobile, especially not a reference to a vehicle door or a door space monitoring device for a vehicle door.

It is, therefore, clear that a combination of JP 10-26724 and Hornbeck also does not disclose or suggest the specific mirror arrangement for a door space monitoring device with the specific design of a single additional non-planar mirror. Claim 1 is, therefore, believed to be patentable over JP 10-26724 in view of Hornbeck and since claim 10 is dependent on claim 1, it is believed to be patentable as well.

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**CLAIMS 5-6 AND 15 ARE PATENTABLE OVER  
JP 10-26724 IN VIEW OF MOCHIDA UNDER 35 U.S.C. 103(A)**  
Claims 5, 6, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP  
10-26724 and further in view of Mochida.

The feature of claim 6, namely the micro-mirror-unit and the photo-detector are provided in an area of a pivot axis of the vehicle door, is not disclosed by JP 10-26724 or Mochida.

Mochida discloses an ultrasound-based remote control system for a door, in which the ultrasound sensor and the ultrasound receiver are arranged at the front region of the fender on the fender in the mirror "k" (see Figs. 5A & C) or in the handle "a" of the front door and the back door of the vehicle. The front region of the fender or the handle of respective door is not in the region of the pivot axis of the vehicle door, rather is far from the region of the pivot axis of the vehicle door. Especially, the door opening mechanism must be far way from the pivot axis of the door so that it is possible for a simple opening and closing of the door without overly large expenditure of force. Also, the mirror "k" with the ultrasound sensor and ultrasound receiver at the front region of the front fender is deliberately arranged far away in order to realize a large three-dimensional monitoring region "B" with large angle, thus to possibly safely encompass the opening region of the vehicle door. This can only be achieved by a position at the front end of the vehicle and thus far away from the pivot axis of the vehicle door.

In contrast, the present invention does not use any ultrasound sensor and forms a monitoring area in the manner of a curtain, namely a two-dimensional monitoring area, due to which no distance measuring is required. The present invention further differs from Mochida et al. in that it enables a very compact arrangement under the application of a micro-mirror-unit for pivoting the light source to form a curtain-like monitoring area (two-dimensional) and that the sensor unit is provided in the area of the pivot axis of the vehicle door. This enables a very simple and effective monitoring with help of a curtain-like two-dimensional monitoring area. This is preferred so formed that the distance of the monitoring plane to the door expands with the increasing distance from the pivot axis. These aspects are not disclosed by Mochida.

It is, therefore, clear that the sensors according Mochida, on the one hand, have a completely different sensor principle (ultrasound vs. optical sensors) from that of the present invention, thus applying to clearly different monitoring regions (three-dimensional

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monitoring region with relative large club opening vs. two-dimensional monitoring region) and, on the other hand, have different positions of the sensor units (far away vs. in the area of the pivot axis of the vehicle door), which lead to completely different effects.

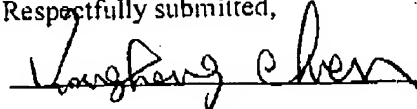
It is, therefore, clear that claim 6 is not disclosed or suggested by JP 10-26724 or Mochida, or a combination thereof. Mochida shows a system for remote control and monitoring of a vehicle door, which concerns a totally different concept from the present invention. Mochida does not contain any hint to apply a different sensor concept other than ultrasound concept, especially not such a specific optical monitoring concept with DMD-devices according to the present invention.

Claim 6 is, therefore, believed to be patentable over JP 10-26724 in view of Mochida. Claims 5 and 15 are believed to be patentable because they are dependent on claim 1.

The patentability of dependent claims 4, 7-9, 11-14, 16-28 have not been separately argued. Claims 4, 7-9, 11-14, 16-18 are believed to be patentable because they are dependent on claim 1.

The Commissioner is hereby authorized to charge any fees which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account Number 50-0951.

Respectfully submitted,



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